AMENDMENTS TO THE CLAIMS

1. (currently amended) A method for growing single crystals of perovskite oxides, which show abnormal grain growths ~~by means of~~ upon heating, the method comprising the steps of:

(a) ~~having~~ providing a perovskite seed single crystal adjoined to a perovskite polycrystal; and

(b) heating ~~a combination of~~ the joined seed single crystal and the polycrystal to ~~have~~ cause the seed single crystal grow into the polycrystal, the heating being carried out under the condition that abnormal grain growths are induced at the interface between the polycrystal and the seed single crystal and are repressed inside the polycrystal.

2. (original) The method as claimed in claim 1, wherein the heating of said step (b) is carried out under the condition that the ratio of the components of the perovskite polycrystal is controlled.

3. (original) The method as claimed in claim 1, wherein the heating of said step (b) is carried out under the condition that specific components of the perovskite polycrystal are added in excess of the original composition.

4. (original) The method as claimed in claim 1, wherein the heating of said step (b) is carried out under the condition that a temperature gradient is formed such that the temperature of the single crystal side is high and the temperature of the polycrystal side is low.

5. (currently amended) ~~the~~ The method as claimed in claim 1, wherein the heating of said step (b) is carried out under the condition that additives for promoting abnormal grain growths are locally added to ~~a combination of~~ the joined seed single crystal and the polycrystal.

6. (original) The method as claimed in claims 2 or 3, wherein the polycrystal is a Pb-type perovskite polycrystal in which abnormal grain growths occur by a change of the ratio of the components or an excess addition of specific components.

7. (currently amended) The method as claimed in any one of claims 1 to 5, wherein the step (a) includes placing the seed single crystal on the polycrystal or a powder molded body of perovskite oxides; or embedding the seed single crystal in the powder, and then performing a molding process; or adjoining the polycrystal to the seed single crystal, and then embedding the ~~combination of the~~ joined polycrystal and

the seed single crystal in the powder and then performing a molding process.

8. (currently amended) The method as claimed in any one of claims 1 to 5, wherein the seed single crystal of step (a) is a perovskite single crystal produced by said method in a previous operation.

9. (original) The method as claimed in claim 6, wherein the seed single crystal is a single crystal of barium titanate or perovskite having the same crystal structure as the barium titanate.

10. (currently amended) ~~the~~ The method as claimed in any one of claims 1 to 5, further comprising the step of:

prior to the step (a), determining the crystal orientation of the seed single crystal, grinding a specific crystal face of the seed single crystal in the crystal orientation determined, and adjoining the ground seed single crystal to the polycrystal to determine the crystal orientation of a single crystal to be grown into the polycrystal from the seed single crystal.

11. (previously amended) The method as claimed in any one of claim 1 to 5, further comprising the step of:

prior to the step (a), molding the polycrystal powder or processing the polycrystal into a specific shape which is intended as a final shape, and then adjoining the shaped polycrystal to the seed single crystal, to produce a single crystal having said final shape without a separate step for processing of the single crystal.

12. (previously amended) The method as claimed in any one of claims 1 to 5, further comprising the step of:

prior to step (a), preparing a polycrystal having a specific porosity, pore size and pore shape by adding an additive to the polycrystal, and changing the amount of a liquid phase or the sintering temperature, atmosphere or pressure of the polycrystal, to control the porosity, the pore size and shape in the single crystal to be grown in the polycrystal.

13. (currently amended) The method as claimed in any one of claims 1 to 5, wherein the perovskite polycrystal of the step (a) is the polycrystal having a composition gradient that changes discontinuously or continuously by adding one or more oxides selected from the group consisting of BaO, Bi_2O_3, CaO, CdO, CeO_2, CoO, Cr_2O_3, Fe_2O_3, HfO_2, K_2O, La_2O_3, MgO, MnO_2, Na_2O, Nb_2O_5, Nd_2O_3, NiO, PbO, Sc_2O_3, SmO_2, SnO_2,

SrO, Ta_2O_5, TiO_2, UO_2, Y_2O_3, ZnO, and ZrO_2 into perovskite structures to the perovskite polycrystal.

14. (original) The method as claimed in any one of claims 1 to 5, wherein the seed single crystal of the step (a) is a single crystal barium titanate including a (111) double twin to provide the polycrystal adjoined to the (111) double twin plate.

15. (canceled)

16. (currently amended) the method as claimed in any one of claims 1 to 5, wherein the perovskite polycrystal is characterized in that one or more additives selected from the group consisting of BaO, Bi_2O_3, CaO, CdO, CeO_2, CoO, Cr_2O_3, Fe_2O_3, HfO_2, K_2O, La_2O_3, MgO, MnO_2, Na_2O, Nb_2O_5, Nd_2O_3, NiO, PbO, Sc_2O_3, SmO_2, SnO_2, SrO, Ta_2O_5, TiO_2, UO_2, Y_2O_3, ZnO, and ZrO_2 to form a solid solution into perovskite structures are added to the polycrystal.

17. (currently amended) the method as claimed in any one of claim 1 to 5, wherein the seed single crystal of the step (a) has a plate-shape or inverted L-shape.

18. (currently amended) The method as claimed in claims 5, wherein the additives are one or more selected from

the group consisting of Al_2O_3, B_2O_3, CuO, GeO_2, Li_2O_3, P_2O_5, PbO, SiO_2 and V_2O_5.

19. (currently ameded) The method as claimed in claim 6, wherein the Pb-type perovskite polycrystal is $(1-x)[Pb(Mg_{1/3}Nb_{2/3})O_3]-x[PbTiO_3](0 \leq x \leq 1)$(PMN-PT) polycrystal.

20. (currently amended) The method as claimed in claim 19, wherein the heating is carried out under the condition that at least one of PbO and MgO, which are components of the polycrystal, are added in excess of the composition formula.

21. (currently amended) The method as claimed in claim 6, wherein the Pb-type perovskite polycrystal is $Pb(Zr_xTi_{1-x})O_3(0 \leq x \leq 1)$(PZT) polycrystal.

22. (currently amended) The method as claimed in claim 21, wherein the heating is carried out under the condition that PbO of a component of the polycrystal is added in excess of the composition formula.

23. (currently amended) The method as claimed in claim 21, wherein the heating is carried out by using $Pb(Zr_xTi_{1-x})O_3$ powder particles having nano sizes.